This is a review text file submitted electronically to MR.

Reviewer: Znojil, Miloslav

Reviewer number:

Address:
Miloslav Znojil,
NPI ASCR,
250 68 Rez,
Czech Republic
znojil@ujf.cas.cz

Author: Dumitriu, Ioana; Koev, Plamen

Short title: Distributions of the extreme eigenvalues of beta-Jacobi random matrices.

MR Number: 2399565

Primary classification: 15A52

Secondary classification(s): 33C70 60E05 62H10 65F15

Review text:

In the context of multivariate statistical theory the paper offers a formula (or rather two formulae) for the distribution of the maximal or minimal eigenvalue of certain beta-dependent random matrices at any positive parameter beta. For beta equal to 1 the well known real-matrix distribution is reproduced, for beta equal to 2 and 4 its extension to complex and quaternionic matrix ensambles is obtained.

The method is found in the Selberg-type integration of the eigenvalue densities leading to the hypergeometric functions of matrix argument. Remarkably related also to symmetric functions, Calogero-Sutherland models and Jack polynomials. Allowing, in addition, for an efficient numerical evaluation (cf. refs. [12. 13 by Koev et al) sampled by two Figures which demonstrate agreement with empirical data generated from 10000 samples at beta = 2 (complex matrices) and, in a terminating case, at a growing beta, respectively.